



# VCC & VCF Collection 4 Reprocessing Status

MODLAND Collection 4  
Reprocessing Review

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# Sequence of Presentation

- MOD44C 16-day interim 250m composite
- MOD44A Vegetative Cover Conversion
- MOD44B Vegetation Continuous Fields

# MOD44C: C4 Changes & Benefits

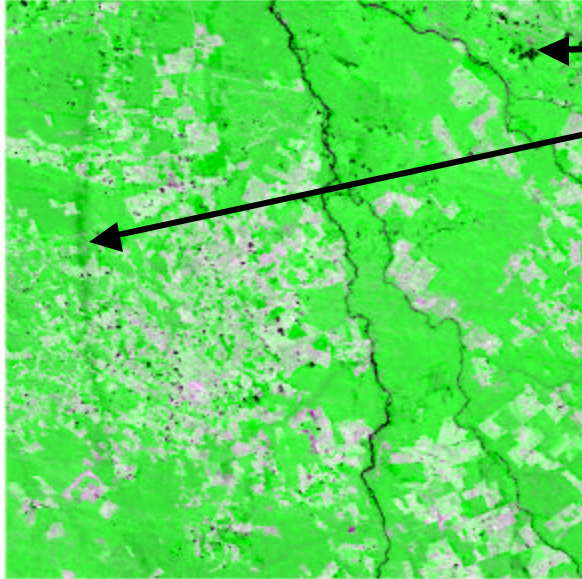
- Incremental changes were made to Collection 3 thus differences between Collections 3 and 4 are minimal.
- Improved utilization of Quality Flags:
  - Converted to MOD09 internal cloud flag;
  - Refined use of aerosol flags;
  - Instituted newly populated cirrus flag.
- Refined the sorting routine:
  - Improved format for ease of maintenance;
  - Resolved one-off error in secondary layers table.
- Collection 4 data continues efforts to select the best (cloud free, near nadir pixel) and will result in improved change detection.

## Example from tile h12v10 (southern Amazon basin)

Collection 4

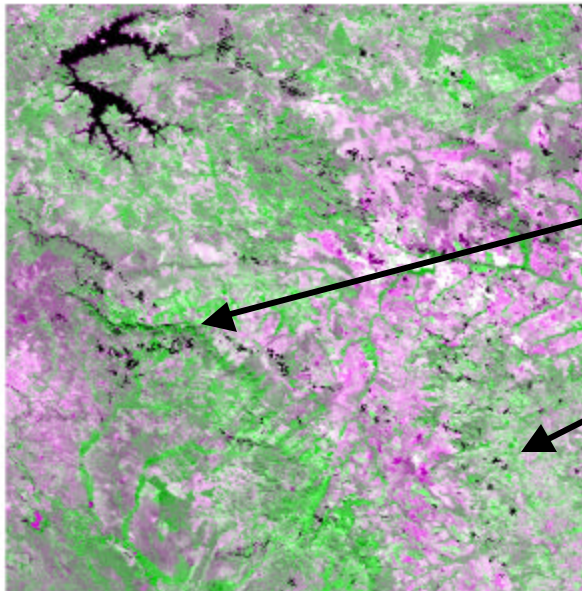
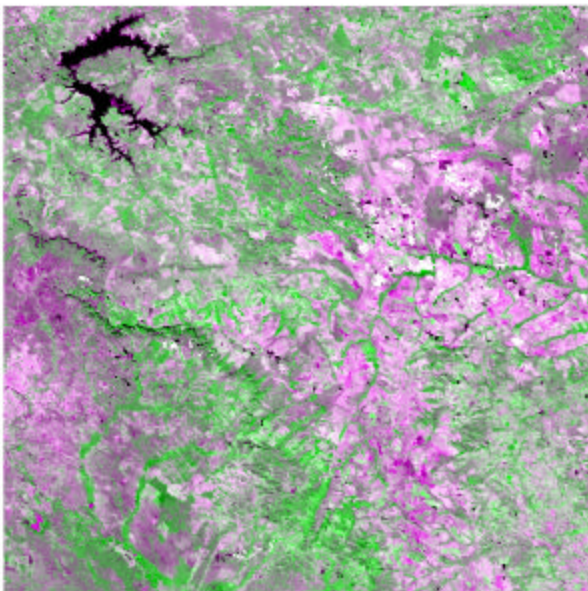


Collection 3



Product quality exceeds that in Collection 3.

- Dark features and cirrus contamination greatly reduced.



- This will result in fewer false detections of land cover change

# MOD44C: C4 Known Issues

- Dark features remain an issue that we would like to resolve:
  - Features with spatial structure remain, particularly in arid areas, that have low reflectance relative to adjacent pixels.
  - Possibly related to cloud shadow or over-correction.
  - Will require ongoing investigation at the SCF.
  - These low values are an issue because the values have characteristics consistent with forested areas.

# MOD44C: Anticipated Changes

- Incremental refinements to the use of the cirrus flags are likely.
- If we can find a resolution for the dark feature issue this will be submitted as soon as possible.
- Update the QA flags that are retained to reflect current configuration.
- Update production rule to accommodate case where the L2G compressed SDS is not filled (late season, high latitude case).

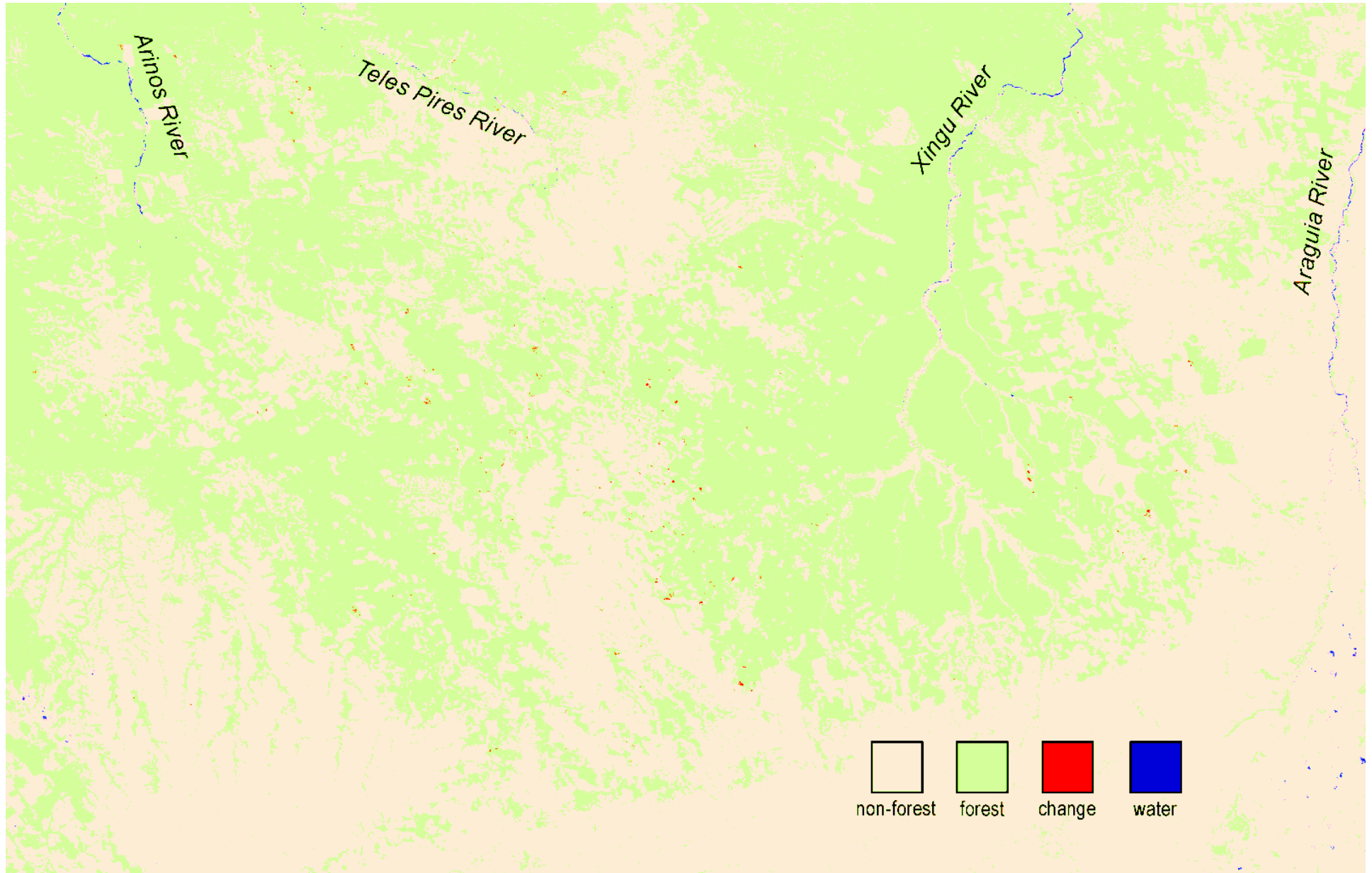
# MOD44A: C4 Changes & Benefits

- With Collection 4, 250m data products will be available globally over the entire MODIS record.
- As such, this will be the first opportunity to produce MOD44A results for large areas over an annual sample period.
- SCF results with improved LUTs and composites are promising and we are quite eager to evaluate our change hotspot product at continental to global scales.
- Primary C3 to C4 change is in the spectral LUTs, which to date we have only been able to derive globally at 500m resolution.



# VCC Change Result: Mato Grosso Plateau, Brazil

## August 2001 to August 2002





# MOD44A: C4 Known Issues

- Bug in output plane results in linear feature every  $n^{\text{th}}$  line.
  - Not certain if bug is in our code or the toolkit.
- Need to alter production rule to add full Julian day to name of output file.
- Update 16 to 32 day compositing method to reflect recent changes to MOD44C (cirrus and cloud flag).

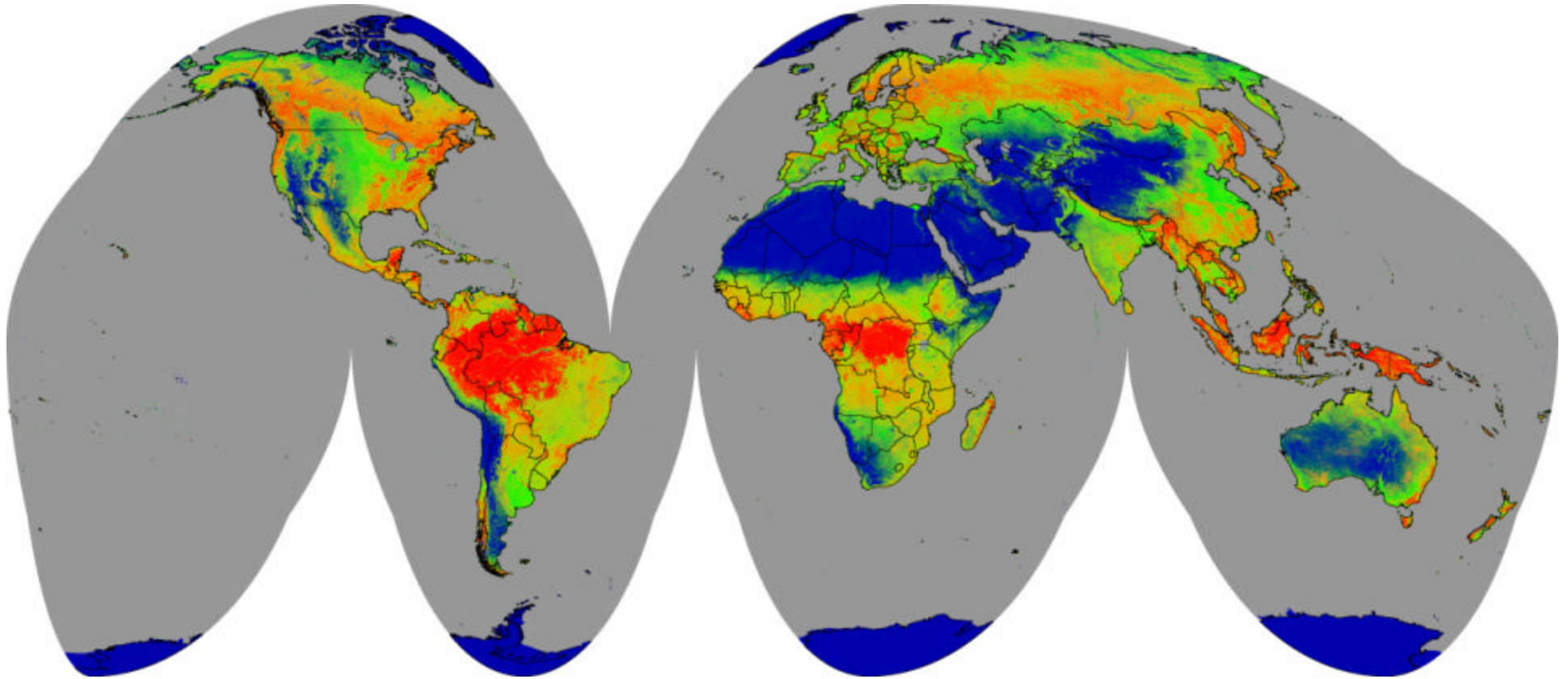
# MOD44A: Anticipated Changes

- Delivery of the revised LUTs.
- Delivery of fixes for known issues from last graph.
- Release of global, annual summary results.

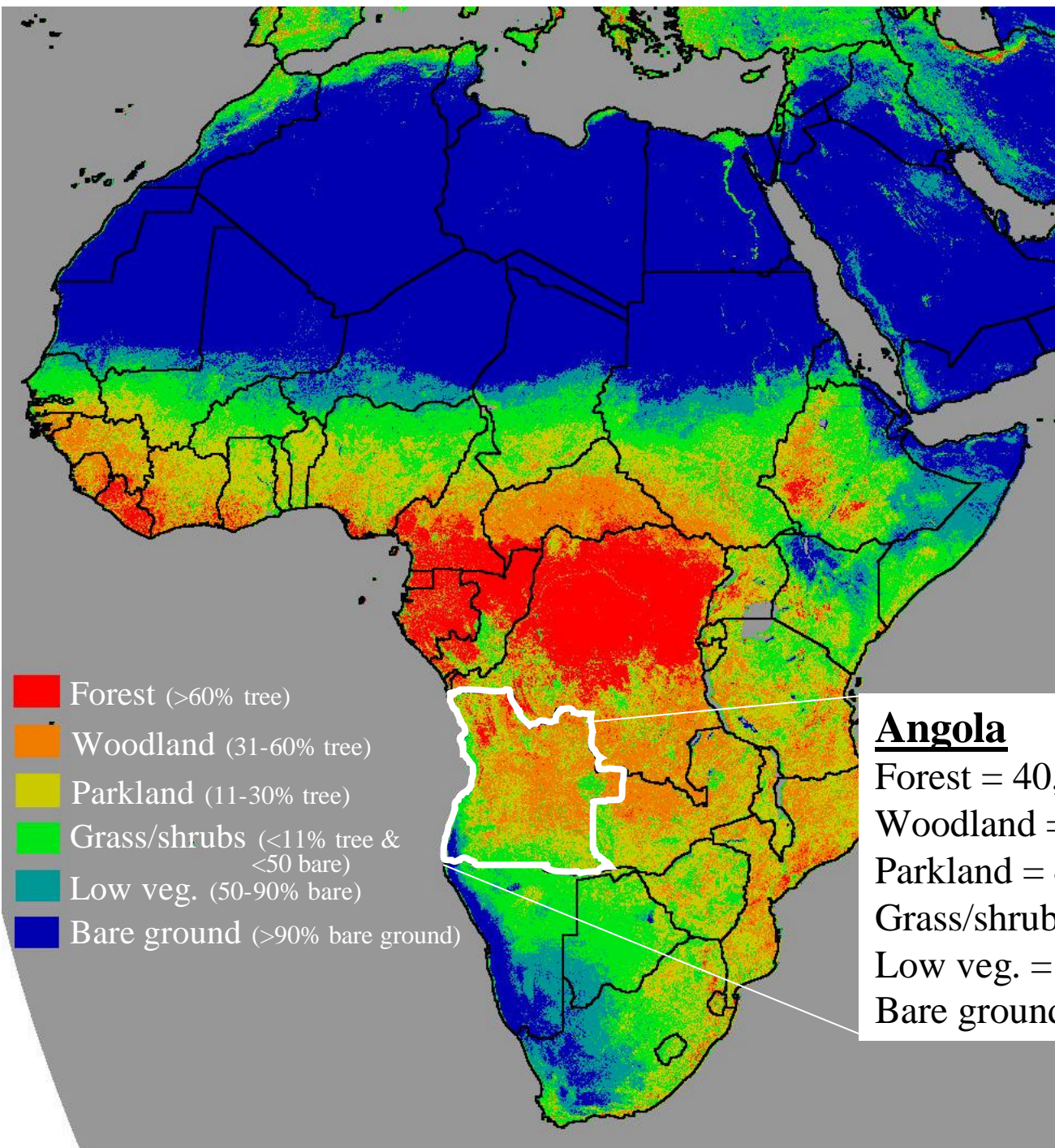
# MOD44B: C4 Changes & Benefits

- % Tree Cover to be distributed from LP-DAAC.
- New layers being added:
  - Leaf Characteristics
    - % Broadleaf and % Needleleaf
  - Leaf Longevity
    - % Evergreen and % Deciduous
  - % Herbaceous
  - % Bare
- Much better ability to discern fragmented forest than AVHRR.

# MODIS Vegetation Continuous Fields – 2000 prototype



This is a subset of a global land cover classification made by thresholding different percent cover layers



### Angola

Forest = 40,512 km<sup>2</sup>

Woodland = 458,496 km<sup>2</sup>

Parkland = 474,432 km<sup>2</sup>

Grass/shrubs = 249,792 km<sup>2</sup>

Low veg. = 17,344 km<sup>2</sup>

Bare ground = 14,784 km<sup>2</sup>

# MOD44B: C4 Known Issues

- Collection 3 has a few areas of low signal due to persistent haze of clouds. Hopefully C4 surface reflectance improvements and the Aqua observations will help improve these troublesome areas.

# MOD44B: Anticipated Changes

- Will produce annual products for 2000, 2001, and 2002.
- Start dates will coincide with Spring Equinox.